

## ALYSON GABBARD WILSON

### RESEARCH AREAS

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Bayesian methods, reliability (with emphasis on complex systems), statistics in defense, data and information integration

### EDUCATION

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#### **Ph.D. Statistics**

**Duke University**, Durham, NC, May 1995

Dissertation: Statistical Methods for Shapes and Deformations.

Savage Dissertation Award in Bayesian Statistics. Director: Valen Johnson

#### **M.S. Statistics**

**Carnegie Mellon University**, Pittsburgh, PA, August 1990

#### **B.A. Mathematical Sciences**

**Rice University**, Houston, TX, May 1989

Summa cum laude, Phi Beta Kappa

### PROFESSIONAL EXPERIENCE

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**Project Leader**, Statistical Sciences Group, Los Alamos National Laboratory, Los Alamos, NM. October 2003-present

Munitions Stockpile Reliability Assessment, Joint DoD/DOE Munitions Program  
LANL Systems Main Technical Element, DOE Enhanced Surveillance Campaign

**Technical Lead for DoD Programs**, Statistical Sciences Group, Los Alamos National Laboratory, Los Alamos, NM. October 2000-present

**Technical Staff Member**, Statistical Sciences Group, Los Alamos National Laboratory, Los Alamos, NM. June 1999-present

**Statistician/Senior Operations Research Systems Analyst**, Cowboy Programming Resources, Inc., El Paso, TX. June 1995-May 1999

Provided analytical support for U.S. Army operational tests of air defense and weapons systems. Planned data collection, data reduction, sample sizes, and analysis data bases. Developed original statistical methodology as required. Developed SAS programs for operational analysis. Tests included PATRIOT, Joint Tactical Ground Station (JTACS), and Avenger.

**Graduate Research Assistant**, Institute of Statistics and Decision Sciences, Duke University, Durham, NC. August 1992-May 1995

**Mathematical Statistician** (GS-1529-9/11), Laboratory of Statistical and Mathematical Methodology, Division of Computer Research and Technology, National Institutes of Health, Bethesda, MD. June 1991-August 1992

Provided statistical computing consultation for users of SAS, BMDP, SPSS, GLIM, S-PLUS, FORTRAN and IMSL on a variety of platforms and operating systems.

Consulted and collaborated with biomedical researchers on statistical projects.  
Developed and taught courses in SAS and S-PLUS.

**Research Assistant**, Department of Epidemiology Data Center, University of Pittsburgh, Pittsburgh, PA. January 1991-May 1991

**Research Assistant**, Software Engineering Institute, Carnegie Mellon University, Pittsburgh, PA. May 1990-August 1990

**Associate Statistician**, Clinical Statistics Department, Burroughs Wellcome Corporation, Research Triangle Park, NC. May 1988-August 1988, May 1989-August 1989

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## REFEREED PUBLICATIONS

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A. Wilson, L. McNamara, G. Wilson. 2007. Information Integration for Complex Systems. *Reliability Engineering and Systems Safety* 92: 121-130.

A. Wilson, T. Graves, M. Hamada, C. S. Reese. 2006. Advances in System Reliability Assessment. To appear in *Statistical Science*.

A. Wilson, A. Huzurbazar. 2006. Bayesian Networks for Multilevel System Reliability. To appear in *Reliability Engineering and Systems Safety*.

C. Anderson-Cook, T. Graves, M. Hamada, N. Hengartner, V. Johnson, C. S. Reese, A. Wilson. 2006. Bayesian Stockpile Reliability Methodology for Complex Systems with Application to a Munitions Stockpile. To appear in *Military Operations Research*.

S. Keller-McNulty, G. Wilson, A. Wilson. 2005. The Impact of Technology on the Scientific Method, with discussion. *Chance* 18 (4): 4-8.

M. Hamada, H. Martz, C. S. Reese, T. Graves, V. Johnson, A. Wilson. 2004. A Fully Bayesian Approach for Combining Multilevel Failure Information in Fault Tree Quantification and Corresponding Optimal Resource Allocation. *Reliability Engineering and Systems Safety* 86 (3): 297-305.

A. Wilson, M. Hamada, M. Xu. 2004. Assessing Production Quality with Nonstandard Measurement Errors. *Journal of Quality Technology* 36(2): 193-206.

C. S. Reese, A. Wilson, M. Hamada, H. Martz, K. Ryan. 2004. Integrated Analysis of Computer and Physical Experiments. *Technometrics* 46(2): 153-164.

S. Keller-McNulty, A. Wilson. 2002. Reliability for the 21<sup>st</sup> Century. In *Mathematical and Statistical Methods in Reliability*, B. Lindqvist, K. Doksum, eds., World Scientific, 15-30.

M. Hamada, H. Martz, C. S. Reese, A. Wilson. 2001. Finding Near-Optimal Bayesian Experimental Designs via Genetic Algorithms. *The American Statistician* 55(3): 175-181.

A. Wilson. 1998. Sample Size Calculations for Test and Evaluation. *The ITEA Journal of Test and Evaluation* 19 (September/October): 46-51.

A. Wilson, V. Johnson. 1995. Models for Shape Deformation. In *Bayesian Statistics 5*, J. Berger, J. Bernardo, A. P. Dawid, A. F. M. Smith, eds. Oxford University Press, 801-808.

A. Knebel, S. Janson-Bjerklie, J. Malley, A. Wilson, J. Marini. 1994. Comparison of Breathing Comfort During Weaning with Two Ventilatory Modes. *American Journal of Respiratory and Critical Care Medicine* 149 (January): 14-18.

#### **In Preparation**

M. Hamada, V. Johnson, H. Martz, C. S. Reese, A. Wilson. 2007. *Bayesian Analysis of Reliability Data*. Under contract with Springer.

A. Wilson, A. Huzurbazar, K. Sentz. 2006. The Imprecise Dirichlet Model For Multilevel Systems Reliability. Submitted to *International Journal of Approximate Reasoning*.

C. S. Reese, V. Johnson, M. Hamada, A. Wilson. 2005. A Hierarchical Model for the Reliability of an Anti-Aircraft Missile System. In revision for *Journal of the American Statistical Association*.

C. Anderson-Cook, T. Graves, N. Hengartner, R. Klamann, A. Koehler, A. Wilson, G. Anderson, G. Lopez. 2005. Reliability Modeling Using Both System Test and Quality Assurance Data. In revision for *Military Operations Research*.

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#### **EDITED BOOKS AND JOURNAL ISSUES**

A. Wilson, G. Wilson, D. Olwell, eds. 2006. *Statistical Methods in Counterterrorism: Game Theory, Modeling, Syndromic Surveillance, and Biometric Authentication*. Springer, New York.

S. Keller-McNulty, A. Wilson, C. Anderson-Cook, eds. Guest editors for *Statistical Science* special issue on reliability. To appear February 2007.

A. Wilson, N. Limnios, S. Keller-McNulty, Y. Armijo, eds. 2005. *Modern Statistical and Mathematical Methods in Reliability*. World Scientific, Singapore.

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#### **PATENT**

E. Chaney, D. Fritsch, S. Pizer, V. Johnson, A. Wilson. 1999. U.S. Patent 5,926,568. *Image Object Matching using Core Analysis and Deformable Shape Loci*.

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#### **PROFESSIONAL SERVICE**

##### **National**

Member, National Academy of Sciences Panel on Methodological Improvement to the Department of Homeland Security's Biological Agent Risk Analysis, 2006-2007

Subcommittee Co-chair, Verification and Uncertainty Quantification, DOE Office of Nuclear Energy and Office of Advanced Scientific Computing Research Simulation and Modeling for Advanced Nuclear Energy Systems Workshop, Washington, DC, August 2006

Chair, American Statistical Association President's Task Force on Statistics in Defense and National Security, 2006

Chair (2007), Chair-Elect (2006), Secretary/Treasurer/Webmaster (2004-2005), American Statistical Association Section on Statistics in Defense and National Security

Member, National Academy of Sciences Panel on the Operational Test Design and Evaluation of the Interim Armored Vehicle, 2002-2003

President (2002-2003) and Vice-President (2001-2002), Albuquerque Chapter, American Statistical Association

### **Conference**

Co-Chair, Mathematical Methods in Reliability Conference, Santa Fe, NM, 2004

Local Organizer, U.S. Army Conference on Applied Statistics, Santa Fe, NM, 2001

Executive Committee for the U.S. Army Conference on Applied Statistics, 2000-present

### **Los Alamos National Laboratory**

Statistical Sciences Group Leader Search Committee, 2005

Los Alamos National Laboratory Fellows Selection Committee, 2003

Nuclear Design and Risk Analysis Group Leader Search Committee, 2003

Los Alamos National Laboratory Laboratory-Directed Research and Development Exploratory Research in Mathematics, Simulation, and Modeling Peer-Review and Funding Committee, 2000-2002

### **Memberships and Refereeing**

Member of the American Statistical Association, Institute for Mathematical Statistics, International Society for Bayesian Analysis, International Test and Evaluation Association, Military Operations Research Society

Referee for National Science Foundation, *Journal of the American Statistical Association*, *Statistical Science*, *IEEE Transactions on Fuzzy Systems*, *IEEE Transactions on Medical Imaging*, *Statistics in Medicine*, *Mathematical Geology*, *Journal of Statistics Education*, *International Journal of General Systems*, *Naval Research Logistics*, *Risk Analysis*

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## **PROGRAM MANAGEMENT/DEVELOPMENT**

LANL Systems Main Technical Element, DOE Enhanced Surveillance Campaign, \$1.5M/year, 2005-present

Munitions Stockpile Reliability Assessment, DoD/DOE Joint Munitions Program, \$600K/year, 2003-present

Ballistic Missile Defense System On-Alert Capability Assessment, Missile Defense Agency, \$150K, 2004

Space and Missile Defense Command Critical Measurements Program, Missile Defense Agency, \$300K/year, 2002-2004

Stores Separation Project, F-22 Program Office, \$300K/year, 2001-2002

Software Reliability Assessment, Army Test and Evaluation Command, \$100K, 2001

## TEACHING AND SHORT COURSES

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A. Wilson. July 2006. Learning from Data. National Youth Science Camp, Bartow, WV.

A. Wilson. July 2005. Making Mathematics a Job. National Youth Science Camp, Bartow, WV.

C. Anderson-Cook, A. Wilson, A. Koehler, T. Graves, C. Chiu. October 2004. Integrated Reliability Assessment. U.S. Army Aviation and Missile Command, Huntsville, AL.

A. Wilson. April 2004. Reliability Section Joint Nuclear Explosives Training Facility Surveillance Engineering Course, Los Alamos National Laboratory, Los Alamos, NM

S. Keller-McNulty, A. Wilson, G. Wilson, A. Koehler. September 2003. Information Integration Technologies for Complex Systems. Institute for Mathematics and Its Applications, University of Minnesota, Minneapolis, MN.

S. Keller-McNulty, N. Hengartner, A. Wilson, C. S. Reese. February 2003. Integrated Reliability Assessment. Marine Corps Program Department, Fallbrook, CA.

A. Wilson, D. Leishman, C. S. Reese. April 2002. Knowledge Integration for Decision Making. Army SMART Conference, Salt Lake City, UT.

A. Wilson, C. S. Reese, S. Keller-McNulty, M. Meyer, J. Booker, T. Bement, M. McNulty. October 2000. Data, Knowledge, and Information Integration to Support Decision Making. U.S. Army Conference on Applied Statistics, Rice University, Houston, TX.

M. Lavine, A. Wilson. Spring 1995. STA 290, Case Studies in Applied Statistics, Duke University graduate course.

A. Wilson. June 1992. DCRT 213: SAS Fundamentals II. National Institutes of Health, Bethesda, MD.

A. Wilson. May 1992. DCRT 212: SAS Fundamentals I. National Institutes of Health, Bethesda, MD.

A. Wilson, F. Yamada. January 1992. DCRT 256: Topics in S-PLUS. National Institutes of Health, Bethesda, MD.

## UNREFEREED PUBLICATIONS

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### Book Chapters

A. Wilson. 2006. Hierarchical Markov Chain Monte Carlo for Bayesian System Reliability. To appear in Encyclopedia of Statistics Quality and Reliability, F. Ruggeri, R. Kenett, F. Faltin, eds. Wiley, Chichester, UK.

A. Wilson, C. S. Reese, M. Hamada, and H. Martz. 2001. Integrated Analysis of Computational and Physical Experimental Lifetime Data. In *Mathematical Reliability: An Expository Perspective*, R. Soyer, N. Singpurwalla, T. Mazzuchi, eds. Kluwer Press, 183-194.

### Conference Proceedings

K. Sentz, A. Wilson. 2005. Fault Tree Uncertainty Quantification Using Probabilities and Belief Structures on Basic and Non-Basic Events. *Proceedings of the North American Fuzzy Information Processing Society*, Ann Arbor, MI.

N. Hengartner, A. Wilson. 2004. Stockpile Reliability Assessment. *Proceedings of the 2004 Mathematical Methods in Reliability Conference*, Santa Fe, NM.

C. S. Reese V. Johnson, M. Hamada, A. Wilson 2004. A Hierarchical Model for System Reliability Based on Lifetime Data. *Proceedings of the 2004 Mathematical Methods in Reliability Conference*, Santa Fe, NM.

A. Wilson, S. Keller-McNulty. 2003. Uncertainty Quantification for Complex Engineered Systems. *Proceedings of JANNAF 39th Combustion/27th Airbreathing Propulsion/21<sup>st</sup> Propulsion Systems Hazards/3rd Modeling and Simulation Joint Subcommittee Meeting*, Colorado Springs, CO.

A. Wilson. 2002. Integrating Information Using Belief Functions. *Proceedings of Mathematical Methods in Reliability 2002*, Trondheim, Norway.

H. Martz, M. Hamada, C. S. Reese, A. Wilson. 2002. Using Genetic Algorithms to Design Bayesian Reliability Experiments. *Proceedings of Mathematical Methods in Reliability 2002*, Trondheim, Norway.

J. Booker, S. Keller-McNulty, M. Meyer, C. S. Reese, A. Wilson. 2001. Probabilistic Information Integration Technology. *Proceedings of the 6th Annual Conference on Turbine Engine High Cycle Fatigue*, Jacksonville, FL.

A. Wilson. 1997. Discussion of Practical Inferences for Decision Making in Industrial Applications. *Proceedings of the Section on Statistical Education*, American Statistical Association, Anaheim, CA.

C. McCulloch, J. Laading, A. Wilson, V. Johnson. 1996. A Shape-Based Framework for Automated Image Segmentation. *Proceedings of the Section on Bayesian Statistical Science*, American Statistical Association, Chicago, IL.

A. Wilson, V. Johnson, S. Pizer, D. Fritsch, L. Yu, E. Chaney. 1996. Towards a Framework for Automated Image Analysis. *Proceedings of the Leeds Annual Statistical Workshop: Image Fusion and Shape Variability Techniques*, Leeds, UK.

A. Wilson, V. Johnson, L. Yu, S. Pizer. 1995. Scale-Space Image Models for Shape Deformation. *Proceedings of the 27th Symposium on the Interface: Computing Science and Statistics*, Interface Foundation of North America, Pittsburgh, PA.

A. Wilson, V. Johnson. 1994. Priors on Scale-Space Templates. *Proceedings of Mathematical Methods in Medical Imaging III, International Society for Optical Engineering (SPIE)*, Bellingham, WA.

A. Wilson, V. Johnson. 1994. Using Features to Model Prior Structural Information. *Proceedings of the Section on Statistics in the Physical and Engineering Sciences*, American Statistical Association, Toronto, CA.

A. Wilson, J. Malley, J. Pfeifer, A. Petelin. 1992. Remarks on the Gibbs Sampler and its Implementation on a Parallel Machine. *Proceedings of the Statistical Computing Section*, American Statistical Association, Boston, MA.

### Technical Reports

C. Anderson-Cook, T. Graves, A. Koehler, E. Lawrence, S. Vander Wiel, A. Wilson. 2005. Comparing Different System Reliability Estimation Methods. LA-UR-05-9401

A. Wilson. 2005. Nuclear Explosives Package Reliability Assessment Methodology. LA-CP-05-0904

A. Wilson, T. Graves, N. Hengartner, R. Klamann, A. Koehler, G. Anderson, K. Deal, G. Lopez. 2004. Development of an Integrated Stockpile Reliability Model for the TOW Missile. LA-CP-04-0644

N. Singpurwalla, A. Wilson. 2003. Probability, Chance, and the Probability of Chance. LA-UR-03-8840

A. Wilson, S. Keller-McNulty. 2003. Complex Information Integration for Reliability and Performance Estimation for the BMD Family of Systems. LA-UR-03-5598

N. Hengartner, A. Wilson. 2003. Bayesian Stockpile Reliability Methodology for Complex Systems with Application to the STINGER Missile Stockpile. LA-CP-03-0894

S. Eubank, C. Barrett, S. Michalak, D. Roberts, A. Wilson, G. Wilson. 2002. Assessment of Responses to Smallpox Attack: Report to the Office of Homeland Security. LA-CP-02-0284

C. S. Reese, J. Morzinski, A. Wilson. 2002. Assessing Stinger Stockpile Reliability Using Information Integration Technology. LA-CP-02-0164

A. Wilson, T. Graves, G. Hemphill. 2002. Statistical Analysis Appendix for Process Qualification Plan 145. LA-CP-02-0104

A. Wilson. 2001. Student Section Article on Non-Academic Jobs for the *ISBA Bulletin*. LA-UR-01-6680

J. Booker, S. Keller-McNulty, M. Meyer, C. S. Reese, A. Wilson. 2001. Probabilistic Information Integration Technology. LA-UR-01-1060

T. Graves, A. Wilson. 2001. Statistical Analysis of Part Homogeneity. LA-CP-01-0450

T. Graves, A. Wilson. 2001. Statistical Analysis of Gallium Concentrations. LA-CP-01-0449

A. Wilson. 2001. Statistical Analysis of DCarc Data and Statistical Analysis of RFP Tbred Data. LA-CP-01-0346

T. Graves, A. Wilson. 2001. Statistical Analysis of Plutonium Exchange Data (1985-1988) and AWE Exchange Data. LA-CP-01-0194

A. Wilson. 2001. Chemical Analysis of WR Ingot Data. LA-CP-01-0193

T. Graves, A. Wilson. 2001. Statistical Appendix for Process Qualification Plan 141a and Process Qualification Plan 150-Rev A: Plutonium Assay by Controlled Potential Coulometry and Dissolution. LA-CP-01-0187

T. Graves, A. Wilson. 2001. Statistical Appendix for Process Qualification Plan 153-Rev A: Spectrophotometric Determination of Iron in Plutonium Materials. LA-CP-01-0186

T. Graves, A. Wilson. 2001. Statistical Appendix for Process Qualification Plan 142-Rev A: Pu Isotopic Distributions of Pu Materials by Thermal Ionization Mass Spectrometry. LA-CP-01-0185

A. Wilson, S. Keller-McNulty. 2000. Statistical Representations for Information Integration. LA-UR-00-4850

M. McNulty, A. Wilson, S. Keller-McNulty. 2000. Information Integration Technology. LA-UR-00-4849

A. Wilson, M. Morris. 1999. Statistical Methods to Validate the National Missile Defense Battle Management Command and Control Software: Summary of Presentation at U.S. Army Conference on Applied Statistics. LA-UR-99-5793

A. Wilson, M. Morris, J. Morrison. NMD BMC2 Algorithm Analysis: Statistical Methods to Validate the National Missile Defense Battle Management Command and Control Software. LA-CP-99-0264

C. McCulloch, J. Laading, A. Wilson, V. Johnson. 1996. A Shape-Based Framework for Automated Image Segmentation. Duke University ISDS Discussion Paper 96-31

A. Wilson, V. Johnson. 1994. Priors on Scale-Space Templates. Duke University ISDS Discussion Paper 94-12

A. Wilson. Cognitive Factors Affecting Subjective Probability Assessment. Duke University ISDS Discussion Paper 94-02

#### **Army Test and Evaluation Reports**

Primary Author of *Draft Joint Tactical Ground Station Regression Testing System Assessment*. Prepared for U.S. Army Operational Evaluation Command. September 1997.

Primary Author of *Draft Joint Tactical Ground Station Product Verification Test/First Article Test Operational Assessment*. Prepared for U.S. Army Operational Evaluation Command. December 1996.

Contributing Author for *Draft Joint Tactical Ground Station Product Verification Test/First Article Test Independent Evaluation Briefing*. Prepared for U.S. Army Operational Evaluation Command. December 1996.



Contributing Author for *Draft PATRIOT Advanced Capability-3, Configuration-2 Follow-on Test and Evaluation Analysis Report*. Prepared for U.S. Army Operational Evaluation Command. October 1996.

Contributing Author for *Draft PATRIOT Advanced Capability-3, Configuration-2 Follow-on Test and Evaluation Test and Evaluation Report*. Prepared for U.S. Army Operational Evaluation Command. September 1996.

Contributing Author for *Draft PATRIOT Advanced Capability-3, Configuration-2 Follow-on Test and Evaluation Independent Evaluation Briefing*. Prepared for U.S. Army Operational Evaluation Command. September 1996.

Contributing Author for *Draft Joint Tactical Ground Station Developmental Test/Operational Test Analysis Report*. Prepared for U.S. Army Operational Evaluation Command. February 1996.

Contributing Author for *Draft Joint Tactical Ground Station Developmental Test/Operational Test and Evaluation Report*. Prepared for U.S. Army Operational Evaluation Command. January 1996.

Contributing Author for *Draft Joint Tactical Ground Station Developmental Test/Operational Test Independent Evaluation Briefing*. Prepared for U.S. Army Operational Evaluation Command. December 1995.

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## PRESENTATIONS

### Seminars

Statistics and Big Science. National Youth Science Camp, Bartow, WV. July 2006

Next Generation Stockpile Reliability Methods. National Nuclear Security Administration Technical Seminar, Washington, DC. March 2006

Statistics, Reliability, and Big Science. National Youth Science Camp, Bartow, WV. July 2005

Statistical Sciences Group Overview. Department of Statistics, Rice University, Houston, TX. June 2005

Statistics and Big Science. National Youth Science Camp, Bartow, WV. July 2004

Munitions Stockpile Reliability Assessment. Los Alamos National Laboratory High Explosives Working Group, Los Alamos, NM. May 2004

Statistics in Defense and National Security at Los Alamos National Laboratory. Chesapeake Bay Chapter, American Statistical Association, Aberdeen, MD. March 2004

Statistics in Defense and National Security at Los Alamos National Laboratory. Virginia Military Institute, Lexington, VA. March 2004

Beyond Batting Averages: Statistics and Big Science. National Youth Science Camp, Bartow, WV. July 2003

Opportunities at Los Alamos National Laboratory. Virginia Military Institute, Lexington, VA. February 2003

Statistics in Defense and National Security. Seminar at Brigham Young University, Provo, UT. April 2002

Information Integration Technology. Risk-Based Design Seminar Series, NASA-Langley, Hampton, VA. June 2001

Information Integration Technology. Uncertainty Quantification Working Group, Sandia National Laboratories, Albuquerque, NM. June 2001

Information Integration Technologies. Basic and Applied Simulation Sciences Group, Los Alamos National Laboratory, Los Alamos, NM (with D. Roberts). May 2001.

Statistical Approaches to DoD Problems at Los Alamos National Laboratory. RAND, Santa Monica, CA. July 2000

Bayesian Models for Shapes and Deformations. Biostatistical Laboratory, University of Texas at El Paso, El Paso, TX. September 1995

#### **Invited**

A. Wilson. November 2006. Statistics and Big Science. StatFest 2006, University of Texas, El Paso. (StatFest is a one-day conference aimed at encouraging undergraduate minority students to pursue careers and graduate studies in statistics.)

A. Wilson. August 2006. Bayesian Reliability. Round-Table Luncheon, Joint Statistical Meetings, Seattle, WA.

A. Wilson. May 2006. Systems Reliability and Experiment Planning. Interface 2006, Pasadena, CA.

A. Wilson. October 2005. System Reliability and Experiment Planning. U.S. Army Conference on Applied Statistics, Monterey, CA.

A. Wilson. October 2005. Experiment Planning Issues in System Reliability. Design and Analysis of Experiments Conference 2005, Santa Fe, NM.

A. Wilson, L. McNamara, G. Wilson. August 2005. Bayesian Reliability Analysis for Complex Systems. Joint Statistical Meetings, Minneapolis, MN.

A. Wilson. December 2004. Techniques for Test Design in the Context of Staged Acquisition. National Research Council Workshop on Spiral Acquisition, Washington, DC.

A. Wilson, K. Sentz. October 2004. An Overview of Uncertainty in the V&V Context. Foundations 2004: A V&V Workshop, Phoenix, AZ.

A. Wilson. October 2004. Predicting Operational Reliability with Quantified Confidence from Limited System Data. Putting the "E" in T&E, International Test and Evaluation Association, Baltimore, MD.

A. Wilson, N. Hengartner. May 2004. Stockpile Reliability Assessment. ISBA World Meeting, Vina del Mar, Chile.

A. Wilson. August 2003. Assessing Risks for Complex Systems: A Case Study in Missile Defense. Joint Statistical Meetings, San Francisco, CA.

A. Wilson. October 2002. Combining Information. National Research Council Panel on the Operational Evaluation of the Interim Armored Vehicle.

A. Wilson. June 2002. Integrating Information Using Belief Functions. Mathematical Methods in Reliability 2002, Trondheim, Norway.

A. Wilson. May 2002. Statistical Methods for Information Integration. Spring Research Conference on Statistics in Industry and Technology, Ann Arbor, MI.

A. Wilson. February 2002. Discussion of Information Integration using Belief Functions. Los Alamos Workshop on Novel Approaches to Uncertainty Quantification, Los Alamos, NM.

A. Wilson. August 2001. Data, Information, and Knowledge Integration for Department of Defense Problems. Joint Statistical Meetings, Atlanta, GA.

J. Kitching, A. Wilson. June 2001. Integrated Analysis of Computer and Physical Experiments. Spring Research Conference on Statistics in Industry and Technology, Roanoke, VA.

A. Wilson. March 2001. Quantifying Uncertainty Using Information Integration Technology. Workshop on Uncertainty in Design, Analysis, and Certification of Engineering Systems, Albuquerque, NM.

A. Wilson. August 2000. Data and Information Integration. Round-Table Luncheon at the Joint Statistical Meetings, Indianapolis, IN.

A. Wilson. June 2000. Statistical Methods to Validate Command and Control Software. Joint Research Conference on Statistics in Quality, Industry, and Technology, Seattle, WA.

A. Wilson. April 2000. Data, Knowledge, and Information Integration to Support Decision Making. Military Operations Research Society Education Symposium, McLean, VA.

C. McCulloch, A. Wilson, J. Laading, V. Johnson. August 1996. A Bayesian Image Model for Automated Feature Identification. Joint Statistical Meetings, Chicago, IL.

A. Wilson, V. Johnson. June 1994. Using Features to Model Prior Structural Information. Spring Research Conference on Statistics in Industry and Technology, Chapel Hill, NC.

### **Contributed**

N. Hengartner, A. Wilson. July 2004. Efficient Semi-Parametric Estimation of an Error-in-Covariates with Validation Sample Arising in Reliability. 6th World Conference of the Bernoulli Society for Mathematical Statistics and Probability and 67th Annual Meeting of the Institute of Mathematical Statistics, Barcelona, Spain.

A. Wilson, S. Keller-McNulty. December 2003. Uncertainty Quantification for Complex Engineered Systems. JANNAF 39th Combustion/27th Airbreathing Propulsion/21st

Propulsion Systems Hazards/3rd Modeling and Simulation Joint Subcommittee Meeting, Colorado Springs, CO.

A. Wilson. October 2003. Information Integration for Stockpile Surveillance. U.S. Army Conference on Applied Statistics, Napa, CA.

A. Wilson, N. Hengartner. October 2002. Munitions Stockpile Reliability Assessment. U.S. Army Conference on Applied Statistics, Raleigh, NC.

A. Wilson. June 2001. Information Integration Technology for Reliability Assessment. 69<sup>th</sup> MORS Symposium, Annapolis, MD.

M. Hamada, C. S. Reese, H. Martz, A. Wilson. September 2000. Information Integration: An Integration of Computer and Experimental Data with Expert Opinions. Poster at Threat Reduction Science and Technology Showcase at Los Alamos, Los Alamos, NM.

M. Hamada, C. S. Reese, H. Martz, A. Wilson. September 2000. Information Integration: An Integration of Computer and Experimental Data with Expert Opinions. Poster at Celebrating Scientific Excellence Through Diversity At LANL, Los Alamos, NM.

L. Tandon, K. Kuhn, P. Martinez, L. Walker, D. Temer, D. Martinez, K. Ryan, A. Wilson, M. Hamada. August 2000. Analytical Chemistry Quality Assessment at LANL. American Chemical Society National Meeting, Washington, DC.

A. Wilson, M. Morris. December 1999. Validating Control System Software. Poster at the Third Annual DOE/MICS Workshop, Los Alamos, NM.

A. Wilson, M. Morris. October 1999. Statistical Methods to Validate the National Missile Defense Battle Management Command and Control Software. U.S. Army Conference on Applied Statistics, West Point, NY.

A. Wilson. October 1998. Modeling Error in Probability-of-Kill Tables. U.S. Army Conference on Applied Statistics, Las Cruces, NM.

A. Wilson. August 1997. Discussion of Practical Inferences for Decision Making in Industrial Applications. Joint Statistical Meetings, Anaheim, CA.

A. Wilson. August 1996. Statistical Models for Shapes and Deformations. Special contributed paper for Savage Award session. Joint Statistical Meetings, Chicago, IL.

A. Wilson, V. Johnson. June 1995. Models for Shape Deformation. Poster at the Fifth Valencia International Meeting on Bayesian Statistics, Alicante, Spain.

A. Wilson, V. Johnson. July 1994. Priors on Scale-Space Templates. International Symposium on Optics, Imaging, and Instrumentation, San Diego, CA.

A. Wilson, J. Malley, J. Pfeifer, A. Petelin. August 1992. Remarks on the Gibbs Sampler and its Implementation on a Parallel Machine. Joint Statistical Meetings, Boston, MA.

#### **Los Alamos National Laboratory**

A. Wilson. Reliability Reporting. June 2005. W88 Annual Assessment Director's Briefing.

A. Wilson. Reliability Initiatives. June 2005. W76 Annual Assessment Director's Briefing.

A. Wilson, T. Graves. March 2005. Models and Computation for Assessing System Reliability. D Division Review Committee.

A. Wilson, A. Koehler, R. Klamann, N. Hengartner. March 2004. Munitions Stockpile Reliability Assessment. D Division Review Committee.

A. Wilson, L. McNamara. May 2003. Expert Knowledge for Statistical Model Development: A Case Study in Ballistic Missile Defense. D Division Review Committee.

### **Programmatic**

#### **Joint DoD/DOE Munitions Program**

Munitions Stockpile Reliability Assessment: Technical Coordinating Group XIV Programmatic Review, Huntsville, AL. May 2006

Munitions Stockpile Reliability Assessment: Technical Coordinating Group X Programmatic Review, Los Alamos, NM. April 2006

Munitions Stockpile Reliability Assessment: System Modeling with GROMIT (with A. Koehler). Fall 2005 TCG Symposium, Monterey, CA. November 2005

Munitions Stockpile Reliability Assessment (with C. Anderson-Cook). Technical Coordinating Group XIV Programmatic Review, Albuquerque, NM. May 2005

Munitions Stockpile Reliability Assessment (with A. Koehler). Technical Coordinating Group XIV Programmatic Review, Dahlgren, VA. November 2004

Munitions Stockpile Reliability Assessment (with N. Hengartner, A. Koehler). Technical Coordinating Group XIV Programmatic Review, Albuquerque, NM. May 2004

Munitions Stockpile Reliability Assessment (with N. Hengartner, A. Koehler, S. Keller-McNulty). Technical Coordinating Group XIV Programmatic Review, Picatinny, NJ. November 2003

Munitions Stockpile Reliability Assessment (with N. Hengartner, S. Keller-McNulty). Technical Coordinating Group XIV Programmatic Review, Albuquerque, NM. May 2003

Update on STINGER Stockpile Reliability Project (with J. Morzinski, C. S. Reese). U.S. Army Aviation and Missile Command, Research, Development, and Engineering Center, Huntsville, AL. April 2002

#### **LANL Systems Main Technical Element, DOE Enhanced Surveillance Campaign**

New Methods for Reliability Assessment. Enhanced Surveillance Campaign Annual Review, Livermore, CA. April 2006

Combining Multilevel Data for System Assessment (with A. Huzurbazar). Sandia/Los Alamos Surveillance Technical Interchange Meeting, Los Alamos, NM. March 2006.

Next Generation Stockpile Reliability Assessment. National Nuclear Security Administration Surveillance Policy Integrated Requirements Council, Albuquerque, NM. February 2006

Next Generation Stockpile Reliability Assessment. Los Alamos National Laboratory Significant Finding Investigation Integrated Product Team, Los Alamos, NM. February 2006

Improved Methods for System Assessment (with T. Graves). US-UK Surveillance Symposium 2006, Las Vegas, NV. January 2006

Surveillance Reliability. Modernizing Pit Surveillance Workshop, Los Alamos, NM. July 2005

Sampling Frequency: A Statistical Perspective (with M. Hamada, S. Keller-McNulty, A. Koehler, G. Wilson). Pit Surveillance Study Workshop, Los Alamos, NM. April 2005

Reliability Overview. National Nuclear Security Administration Surveillance Review Committee (with C. S. Reese, M. Hamada, S. Keller-McNulty), Los Alamos, NM. December 2004

Enhanced Reliability and Systems Modeling (with S. Keller-McNulty, M. Hamada). Enhanced Surveillance Campaign Annual Review, Los Alamos, NM. April 2004

**Ballistic Missile Defense System On-Alert Capability Assessment**

Information Integration Technology. BMDS On-Alert Capability Assessment Team Meeting, Johns Hopkins University Applied Physics Laboratory, Columbia, MD. October 2004

**Missile Defense Agency Critical Measurements Program**

Information Integration Technology and Predictive Modeling for CMP-4 (with L. McNamara). CMP-4 Critical Design Review, Concord, MA. September 2002

Information Integration Technology (with L. McNamara). U.S. Army Space and Missile Defense Command, Huntsville, AL. July 2001

LANL Information Integration Technology Model Development Update for Space Missile Defense Command Critical Measurements Program (with L. McNamara). U.S. Army Space and Missile Defense Command, Huntsville, AL. July 2001

**TRW National Missile Defense Battle Management Command and Control**

Preliminary Statistical Results and Future Directions for BMC2 V&V. TRW. Huntsville, AL. October 1999

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**HONORS, AWARDS, SCHOLARSHIPS**

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Los Alamos National Laboratory Achievement Award for leadership in the quality initiative to transform reliability assessment for the nuclear stockpile, October 2005

Best Broad-Appeal Paper (with S. Keller-McNulty) for *Uncertainty Quantification for Complex Engineered Systems*, JANNAF 39th Combustion/27th Airbreathing Propulsion/21st Propulsion Systems Hazards/3rd Modeling and Simulation Joint Subcommittee Meeting, Colorado Springs, CO. December 2003

Los Alamos National Laboratory Achievement Award for leadership in DoD program development, July 2000

Savage Dissertation Award in Bayesian Statistics for *Statistical Models for Shapes and Deformations*, director Valen Johnson, August 1995

Honorable Mention, Gertrude Cox Scholarship (sponsored by the American Statistical Association's Committee on Women in Statistics and the Caucus for Women in Statistics), August 1993

Clare Boothe Luce Fellowship for Women in Science, Duke University, August 1992

James B. Duke Fellowship in Statistics, Duke University, August 1992

National Institute of Health, Division of Computer Research and Technology Employee of the Month, April 1992

National Science Foundation Graduate Research Fellowship, August 1989

University Scholar full-tuition scholarship, Rice University, August 1985-May 1989

Max Roy Scholarship, Rice University, August 1985

William Randolph Hearst Foundation Scholarship, August 1985

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## STUDENTS

Co-chair, Ph.D. Committee, Kari Sentz, Binghamton University, Department of Systems Science and Industrial Engineering (expected completion May 2007)

Summer Student Mentor, Brian Weaver, University of New Mexico, 2006

Summer Student Mentor, Kristi O'Grady, North Carolina State University, 2003

Summer Student Mentor, Morgan Harris, Virginia Military Institute, 2003

Summer Student Mentor, Meng Xu, University of Idaho, 2001

Summer Student Mentor, Andrew Swift, George Washington University, 2001

Statistical Sciences Group Student Coordinator, 2001-present

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## PROFESSIONAL DEVELOPMENT/TRAINING

Los Alamos National Laboratory Management Institute, August-November 2006

- Situational Leadership
- Coaching Skills for Managers
- Strategic Project Thinking (Certified Level One Strategic Project Thinker)
- Managing Change
- Managing Technical Professionals in Organizations

Project Management Toolkit, June 2006

Joint Nuclear Explosives Training Facility W88 Weapon Engineering Course, November 2000

Introduction to Plutonium Metallurgy and Advanced Topics in Plutonium Metallurgy, January 2000